RTCA DIGEST

New Special Committee on: AOC Messages Delivered via ACARS

The RTCA Program Management Committee has formed SC-201 to develop recommended guidance for dealing with Aeronautical Operational Control (AOC) messages transmitted over ACARS and deemed to present a major category hazard if the message becomes corrupted during transmission.

Airlines collect information from various sources, calculate takeoff parameters at a central location and pass this information to cockpit crews via ACARS. Delivery of AOC messages via ACARS is very important to the safety and regularity of flight. In fact, airlines could not maintain their schedules during high volume periods at the major airports if the delivery of these AOC messages via ACARS was interrupted.

The FAA Aircraft Certification Service has determined that certain AOC messages sent to the cockpit using ACARS (e.g., weight and balance, V-speeds, and others) have a potential to present a major category hazard if they are corrupted. Since ACARS has been certified using minor hazard category criteria, aircraft operators are required to identify and allocate means of mitigating these hazards.

Airlines have used ACARS to convey this AOC information for many years. Discussions during a recent AEEC Data Link Users Forum resulted in a request for a new Special Committee, the product of which would be to recommend acceptable mitigations for ACARS messages deemed to pose a major hazard if corrupted.

The new committee will address both existing and new message applications. Since existing message applications have already been approved for use, the committee plans to describe the various accepted hazard mitigation methods and complete this portion of its tasking in six months.

New AOC message applications that are determined to present a major category hazard if corrupted will be addressed as a separate task. At present, this portion of the task is scheduled to be completed 12 months later.

Captain Frank Longo, a Continental Airlines Boeing-777 pilot, is the Chairman of SC-201. Mr. Roy Oishi, ARINC Incorporated, is the Secretary. Mr. Matthew Wade, FAA AIR-130, is the Designated Federal Official.

The first SC-201 meeting was held on September 19. Meeting information will be posted on the RTCA web site as soon as it is available.

Program Management Committee

The Program Management Committee (PMC) approved a new SC-201, two new documents and one change to an existing document during its meeting on August 27, 2002. SC-201 is featured on page 1 of this issue. The new documents and the change are detailed on page 8.

Additional issues discussed:

- SC-159, Global Positioning System. The PMC approved new Terms of Reference (TOR) to include consideration of Galileo requirements in MASPS, MOPS and other GPS Modernization (GPS L5 and WAAS L5) projects.

- SC-200, Modular Avionics. The PMC approved the request to merge the activities of RTCA's SC-200 and EUROCAE' WG-60 into a joint committee. No changes were made to the intent of the original TOR tasks.

- Eurocontrol's 8.33 kHz Vertical Expansion Study Report. The PMC briefly discussed the report and noted that vertical expansion of 8.33 kHz radio coverage may be necessary in Europe to avoid unacceptable frequency congestion by 2008.

The next PMC meeting will be on October 10, 2002.

Chairman: Bill Jeffers, ARINC
Secretary: Harold Moses, RTCA,

RTCA Welcomes New Members

AACE Worldwide designs and manufacturers telecommunication hardware for flight cockpit security systems. Representative: Mr. Peter J. Reid

Aerospace Logic Inc. designs and manufactures aircraft instrumentation for the general aviation. Representative: Ms. Mirella Collendan

Association for Unmanned Vehicle Systems International (AUVSI) is the world's largest non-profit organization devoted to fostering, developing, and promoting unmanned systems and related technologies. Representative: Mr. Daryl Davidson

Aviation, Navigation and Satellite Programs, Inc. provides implementations for National Airspace System modernization. Technology expertise includes LAAS, ADS-B, ASDE-X, and airport geographic information systems. Representative: Mr. John Foggia

Avionics Support manages and repairs airplanes for the Columbian Army. Representative: Mr. Alonso Hernandez

Chelton Satcom Inc. designs and manufactures antennas, stabilized antenna systems and telecommunication products for aviation applications. Representative: Mr. Johan Pretorius

Goodrich Fuel and Utility Systems designs integrated systems that incorporate leading edge technology, reduce aircraft operating costs, and improve aircraft safety and operational readiness. Representative: Mr. John Covell

GPS Design, Inc. provides aviation engineering and consulting services. Representative: Mr. Gregg Stutes

Innovative Consulting Solution, Inc. provides consulting services for aircraft and aircraft product certifications. Representative: Mr. Wayne A. Shade

JetPro Consultants is an independent flight technical organization providing multi-disciplined and integrated solutions. The company specializes in solutions for operational and business challenges faced by air carriers. Representative: Mr. Ed McDonald

Mannarino Systems & Software Inc. is an engineering consulting company providing services for gas turbine control systems in commercial turboshaft, turboprop, and turbofan applications. Representative: Mr. John Mannarino

Mizar Technologies, LLC is an electronic product development company focusing on the needs of navigation - land, sea, and air. Representative: Mr. Gary Kochis

MJF Strategies, LLC provides expert advice to executives in government and the aviation industry. MJF Strategies also develops and implements management, technical, operational, political and communication strategies. Representative: Ms. Margaret Jenny

Newbrighton Avionics Design Services is an independent design approval representative in the specialty of electrical and avionics systems. The company prepares modification design documents and compliance packages. Representative: Mr. William Baines

NITA, LLC is a leader in the Russian ATC equipment market. In the last five years NITA has installed equipment in more than 80 aerodrome and ATC Centers throughout Russia and overseas. Representative: Mr. Sergey Piatko

Sky-Tec Manufacturing Inc. is a manufacturer of aircraft starters. Representative: Mr. L.E. Staples

Spectracom Corporation provides precise frequency and time of day electronic equipment to FAA for ground use. Representative: Mr. Roger Pawlowski

Wein and Associates provides technical and engineering management support to companies doing business with FAA. Representative: Mr. Robert F. Wein

The Easy Work

Steve Brown

Associate Administrator, Air Traffic Services, FAA

Like most people, when I get tired or stuck in a rut I get frustrated. Depending on your perspective, there is plenty to be in a funk about these days. The national economy is in the doldrums and our aviation industry has probably never seen more severe economic stress. A year beyond the September 11 attacks our daily news is filled with tense international discussions and energetic debate over both strategy and tactics. Closer to home, national and local election campaigns are underway with candidates positioning themselves in numerous close races. Add to all this children starting a new school year, a couple of seasonal hurricanes and your parents asking if they should order their prescription drugs from Canada - life can seem complex.

Early in my career, I was lamenting a pile of frustrations one morning with a mentor and coach. After going through the current list of what I thought were unique and weighty issues, I concluded with "why me, why now, this is unfair and too much." My semi-retired, 70 year old sage just gave me a steady stare, and then passed on this revelation: "those of us who were here before you tackled the easy work and harvested the low hanging fruit for our quarterly results. What remains to be done is the hard stuff and that's what we pay you to accomplish."

This dose of tough love was not exactly the inspiration I felt I was looking for at the time. Yet its logic, on reflection, seems to be one of those universal truths.

In an era where we have all the technology we could possibly afford and our program skills are refined, it seems our chief collective challenge is how to transition humans from today to an increasingly complex and undefined future. People naturally see themselves as possessing special skills and talents. People also have a natural aversion to the unknown. We have a tendency to quickly fill the unknown with assumptions and projections of the "most likely." More often than not, the "most likely" is not based on much insight or hard fact.

RTCA works to be an antidote for the common flow of daily frustrations and erroneous assumptions. When we are able as a diverse community of stakeholders to focus on the real challenges, we recognize that the essential task is transition — using technology to help the critical human elements of our air transportation system better meet the demands for increased safety, security, capacity and efficiency.

It's certainly less frustrating to stop at technology selection or even at planning. The work that remains … the hard stuff … is defining the continuing role humans will play in our air transportation system, then transitioning to that new paradigm.

Air Traffic Management Data Link Implementation (SC-194)

Special Committee SC-194, Air Traffic Management (ATM) Data Link Implementation met in plenary sessions on August 5th and 7th, 2002 at RTCA.

Committee members were informed that Delta Air Lines has committed to supporting the Controller-Pilot Data Link Communications (CPDLC) Build 1 program with four aircraft. Certification is expected in January 2003. The Air Force has also committed one C-21 aircraft. The FAA representative reported that the Build 1 work to date has been very successful and that Build 1A is still on schedule for December 2005.

Working Group 1 (WG1) continues to develop its product, "Plans and Prin-ciples for Implementation of Aeronautical Data Link System (ADLS) Build II (Spiral A)." The Baseline 1 message set has been updated and now includes messages required to enable Traffic Management Advisor (TMA). Therefore, WG 1 is incorporating TMA in the document for Decision Support Tool (DST) Integration in Build IIA. Other working group issues include security and international message set standardization. Completion of WG1's next draft of the document is expected by December 2002.

Working Group 3 members are continuing to support the development of WG1's Plans and Principles document.

Working Group 4 (WG4) reassessed its DO-Connect document and its TOR for the group. A suggested new TOR for WG4 was presented to the Plenary. The WG expects to complete the next draft of their document by December 2002.

SC-194 continues on track and maintains its view that demand on the National Airspace System (NAS) will increase and that CPDLC represents an effective tool for the NAS.

The next SC-194 Plenary is planned for December 10-12, 2002, at RTCA.

Co-chairmen: Frank Cheshire, American Airlines (consultant)
Vic Nagowski, ARINC
Program Director: Rudy Ruana, RTCA

Flight Information Services Communications (FISC) (SC-195)

SC-195 met at the Air Line Pilots Association in Herndon, Virginia on August 27, 2002.

The committee is currently working on Change 1 to DO-267, *MASPS for Flight Information Services-Broadcast (FIS-B) Data Link*. The FAA Technical Center (ACT-350) has agreed to maintain the MASPS Product Registry when it is completed. Guidance for maintaining the Product Registry will be provided in an appendix in Change 1 to DO-267. One proposed approach for the appendix would center on extracts of information from the Product Identifier table (Table 7) and Flight Information Service-Broadcast specifications from Appendix E.

The plenary discussed proposed text for Appendix F of Change 1, which describes the frame format for the UAT uplink services. Appendix F outlines exceptions to strict compliance with ISO 3309. Section F.1 provides the VDL Mode 2 frame format. A placeholder was included in section F.2 for the UAT frame format. The working paper will be revised based on the comments discussed during the meeting.

The committee also discussed an issue paper that was submitted by FAA AIR-130 on the inappropriate use of color in the cockpit. Red had been proposed for a variety of items. WG-1, Aircraft Cockpit Weather Display, reported that proposed text for draft Change 1, DO-267, Section 3.8, on the use of red will be submitted at the next SC-195 plenary meeting.

Proposed dates for the next SC-195 Plenary at RTCA are December 4 and 5, 2002.

Chairmen: Steve Henely, Rockwell Collins
Program Director: Rudy Ruana, RTCA

FYI....

Change to RTCA Membership Dues Process:

Effective October 1, 2002 we will no longer prorate new member dues to the end of the calendar year. Now, new members will pay dues for a full year and renew the following year in the anniversary month of their joining.

Please Note:
- *Dues rates have not changed*
- *Membership renewal dates for current members did not change. Current memberships remain effective through December 31, 2002.*

Modular Avionics (SC-200)

The second SC-200 Plenary was held at RTCA from July 30 through August 1. Members of EUROCAE WG-60 participated.

Questions relating to a common Terms of Reference (TOR) for SC-200 and WG-60 were resolved. The RTCA PMC approved the proposed joint TOR on August 27th and the next meeting of the EUROCAE Council will also consider them. If approved by the EUROCAE Council, SC-200 and WG-60 will work together as a joint activity.

A number of ad hoc groups were formed during the three-day plenary.

The Executive Team defined a joint working group process and associated procedures. The Document Outline group proposed a common outline for the Guidance Document that will be developed by the joint committee. The Glossary group combined the SC-200 and WG-60 glossaries. The Key Characteristics group integrated the SC-200 and WG-60 definitions of key characteristics.

Standing Subgroups (SG) took writing assignments for the following document sections:
SG1 – Introduction, Modular Avionics overview, Modular Avionics Design and Integration, Glossary

SG2 – Modular Avionics Systems and Component Certification, Sections 3.0, 5.0, and 6.0

SG3 – Significant Issues – Section 7.0

The next meeting is planned for November 12-14, 2002, in Hamburg, Germany. Peter Anders of Airbus will host the meeting.

Chairmen: RTCA SC-200 Cary Spitzer, AvioniCon
EUROCAE WG-60 John Vincent, CAA (UK)

Program Director: Rudy Ruana, RTCA,Inc.

Airport Security (SC-199)

SC-199 met on August 22-23, to complete a review of all Sections and Appendices of the revised DO-230. New comments and recommendations from the working groups were incorporated into the final draft. The document were provided to committee members to complete the Final Review and Comment process.

A next meeting date will be determined after final comments are received on the proposed DO-230.

Chair:
Christer Wilkinson, DMJMH+N

Program Director:
Harold Moses, RTCA, Inc.

Free Flight Steering Committee (FFSC)

The Steering Committee met on August 21ST to consider recommendations from the Free Flight Select Committee and receive updates from the FAA on the ADS-B link decision and Operational Evolution Plan (OEP).

Roger Wall, Chairman of the Free Flight Select Committee, reported the status of two proposed documents and presented Select Committee recommendations for an OEP work program, high altitude redesign and other topics.

The Select Committee has completed a two-part document, *Recommendations Regarding the Concept of Equipage and Mandated versus Voluntary Considerations*. This document recommends a process and milestones for configuring the fleet to achieve OEP capabilities. The OEP has provided a good beginning for the Concept of Equipage task but additional detail is required to complete the work. Accordingly, the Select Committee recommended formation of a collaborative group to obtain additional detail upon which avionics costing and installation timelines can be based. The mandated versus voluntary section of the document recommends a set of overarching principles and decision guidelines for FAA consideration in equipage decision making. The Free Flight Steering Committee concurred in forwarding the document to the FAA as a recommendation.

Mr. Wall reported on the Select Committee's draft document, *National Airspace System Concept of Operations, Revision 1*. This revision updates the December 2000 document and adds a preface that briefly summarizes the aviation community's vision for the future. Subsequent to the consensus reached during the Select Committee's final review of the document, comments were received that could not be resolved prior to the Steering Committee meeting. The Steering Committee asked the Select Committee to preserve the concepts in the consensus-based document while striving for broader agreement, then return the document to the Steering Committee for review / approval. The Steering Committee will likely reconvene in November to consider the updated Concept of Operations document.

The Select Committee endorsed the FAA's high altitude redesign but recommended FAA resolve Navigational Reference System issues before implementation in March 2003. The Select Committee also recommended that FAA maintain the original deployment schedule for the Traffic Management Advisor tool to realize the full potential of Free Flight Phases 1 and 2. The Select Committee further recommended the FAA develop a process to collect airport survey data that would support moving map applications. The Steering Committee concurred in these suggestions and forwarded them to FAA.

Dr. John Scardina, FAA, reported that the FAA Administrator signed the ADS-B link decision in June 2002 and asked the agency to continue working with the aviation community to implement ADS-B in the National Air Space System. FAA is working with EUROCONTROL to develop a joint strategy and has a draft document that is currently being coordinated with European States.

Duane Dupon, FAA Operational Evolution Plan staff, briefed that version five of the OEP is planned for release in December 2002.

The next meeting of the Free Flight Steering Committee is expected to take place in November 2002.

ACRONYMS

ACARS	Aircraft Communications Addressing and Reporting System	MASPS	Minimum Aviation System Performance Standard
ADLS	Aeronautical Data Link System	MOPS	Minimum Operational Performance Standard
AEEC	Airlines Electronic Engineering Committee	NAS	National Airspace System
AMHM	AOC Message Hazard Mitigation	OEP	Operational Evolution Plan
AOC	Aeronautical Operational Control	PMC	Program Management Committee
ATM	Air Traffic Management	PRN	Pseudo Random Noise
CPDLC	Controller-Pilot Data Link Communications	RAIM	Receiver Autonomous Integrity Monitoring
DST	Decision Support Tool	RFI	Radio Frequency Interference
EUROCAE	European Organisation for Civil Aviation Equipment	SBAS	Space Based Augmentation System
		TMA	Traffic Management Advisor
FIS-B	Flight Information Services-Broadcast	TOR	Terms of Reference
FISC	Flight Information Services Communications	UAT	Universal Access Transceiver
GNSS	Global Navigation Satellite System	VDL	VHF Digital Link
GPS	Global Positioning System	VHF	Very High Frequency
LAAS	Local Area Augmentation System	WAAS	Wide Area Augmentation System

Global Positioning System (SC-159)

The fifty-ninth meeting of SC-159 was held on August 16th at RTCA. The committee approved four items:

- Revised DO-235, *Assessment of Radio Frequency Interference Relevant to the GNSS*. The Program Management Committee will consider the document for approval.
- A report entitled - *RTCA SC-159 Response to the Johns Hopkins University/Applied Physics Lab (JHU/APL) Recommendation Regarding Receiver Autonomous Integrity Monitoring (RAIM)*. The report concludes that there is no autonomous integrity monitoring method better than conventional RAIM.
- Errata for DO-229C. The Errata provides a small number of editorial corrections.
- A recommendation to expand the SC-159 TOR, to include consideration of Galileo in future MASPS, MOPS and other projects.

WG-1, 3rd Civil Frequency, discussed GPS modernization status, L5 Pseudo Random Noise (PRN) code selection and the latest from the Galileo program. The group's work program includes a WAAS/SBAS L5 Interface Control Document, an update to DO-261, L5 Signal Specification, and a MOPS for airborne equipment.

WG-2, GPS/WAAS, initiated activity to revise DO-228 – *MOPS for GNSS Airborne Antenna Equipment.* The group also reviewed the current status of the WAAS program. Initial Operational Capability for WAAS Phase 1 is expected between July and December 2003. FAA proposed AC 20-138A, *Airworthiness Approval of Global Navigation Satellite System (GNSS) Equipment,* is available for public comment.

WG-2A, GPS/GLONASS, continues to monitor GLONASS activity.

WG-2C, GPS/Inertial, is working to determine the degree to which tightly integrated GPS/inertial coasting would help continue navigation in the presence of interference. Three independent analyses produced similar coast times. Work is ongoing to advance the gravity error compensation and possibly double the coast times.

WG-4, GPS/WAAS, continued to develop changes to DO-245, LAAS MASPS. Significant progress was reported on CAT II/III Precision Approach Task requirements, availability tradeoffs and augmentation alternatives. WG-4 defined a preliminary concept for incorporating complex approach procedure definitions in the message block for curved/segmented approaches, departure guidance and guided missed approaches.

WG-5, Airport Surface Navigation and Surveillance, is keeping current on the status of airport surface requirements. The WG agreed on clear definitions for "navigation" and "situational awareness" that properly reflect the intended use of LAAS guidance information for surface applications.

WG-6, GPS/Interference, completed the GNSS L1 RFI Assessment Report and continued work on the L5 RFI Assessment Report.

Next meeting: January 13-17, 2003

Chair: Larry Chesto, Consultant
Vice Chair: George Ligler, PMEI
Program Director:
Harold Moses, RTCA, Inc.

NEW DOCUMENTS AVAILABLE

Recommendations Regarding the Concept of Equipage and Mandated versus Voluntary Considerations
Issued 8-21-02 Prepared by the
Free Flight Steering Committee

This two-part document responds to the need for Operational Evolution Plan related aircraft equipage recommendations. The objective of the Concept of Equipage work was to provide a recommended process and milestones to configure the fleet to achieve OEP capabilities. Four categories of capability were found to have avionics equipage implications: Domestic Reduced Vertical Separation Minima, Area Navigation, Controller Pilot Data Link Communication, and Future Air Navigation System 1A. In equipage related follow on work, additional detail will be obtained upon which avionics costing and installation timelines can be based. The second section of the document provides definitions of "mandated" and "voluntary" and offers recommended guidelines and criteria for FAA consideration when making mandated / voluntary equipage decisions.

DO-271A, Minimum Operational Performance Standards (MOPS) for Aircraft VDL Mode 3 Transceiver Operating in the Frequency Range 117.975-137.000 MHz
Issued 8-27-02 Prepared by SC-172

This document presents the verification procedures for an aircraft Very High Frequency (VHF) Digital Link (VDL) Mode 3 transceiver used for air-ground (A/G) voice and data communications. It provides upgrades to the original VDL Mode 3 MOPS, identifies equipment classes and applicable tests for use in TSO applications, and adds a number of new capabilities and tests. The recommended standards are compatible with the relevant International Civil Aviation Organization (ICAO) VDL Mode 3 Standards and Recommended Practices (SARPs) as described in RTCA DO-224A and changes.

Change 2 to DO-224A, Signal-in-Space Minimum Aviation System Performance Standards (MASPS) for Advanced VHF Digital Data Communications Including Compatibility with Digital Voice Techniques
Issued 8-27-02 Prepared by SC-172

Change 2 provides improved interoperability for avionics and ground system development and adds information important to the demonstration of VDL Mode 3 in a certified system. It includes multiple 3-slot and 4-slot VDL Mode 3 configuration descriptions, replaces Appendix H, and adds a new Appendix M (VHF Channel Labels).

Errata – DO-229C, Minimum Operational Performance Standards for Global Positioning System/ Wide Area Augmentation System Airborne Equipment
Issued 8-16-02 Prepared by SC-159
The Errata provides editorial corrections to the original document.

DO-282, Minimum Operational Performance Standards for Universal Access Transceiver (UAT) Automatic Dependent Surveillance – Broadcast
Issued 8-27-02 Prepared by SC-186

This document contains Minimum Operational Performance Standards for airborne equipment to support Automatic Dependent Surveillance - Broadcast utilizing the Universal Access Transceiver (UAT). UAT is a multi-purpose aeronautical data link intended to support not only ADS-B, but also Flight Information Service - Broadcast (FIS-B), Traffic Information Service - Broadcast (TIS-B), and, if required in the future, supplementary ranging and positioning capabilities. While UAT has been expressly designed as a multi-purpose data link for surveillance-related applications, the focus of this document is on its support of ADS-B and basic ground uplink capabilities.

Document Ordering Information
Place your order: To order an RTCA document, please contact Patrice Dickens at RTCA. Phone: (202) 833-9339; fax: (202)833-9434; e-mail: pdickens@rtca.org.

Calendar of Events

October

8-10	SC-198
10	PMC
22	DO-178B Training-Mangers Course
22-23	DO-178B Training-Practitioners Course

November

5-7	SC-172
13-14	SC-198 WG-6
12-14	SC-200 Plenary
12-15	SC-186 WG-3

Unless otherwise specified, all meetings will be held at RTCA, Inc., 1828 L Street NW, Suite 805, Washington, DC 20036 USA. Phone: (202) 833-9339. Fax: (202) 833-9434. The information in this calendar is deemed to be reliable as of the date of publication, but is not guaranteed and is subject to change. Please contact RTCA for updates. All RTCA Federal Advisory Committee meetings are open to the public and are free of charge. Visit our Web site at www.rtca.org for current schedules of SC meetings, WG meetings and other upcoming events. If you have any problems or questions, contact RTCA (info@rtca.org).